

CLAIMS

We claim:

1. A method for detecting the presence of a biopolymer, comprising:
 - 10 (a) adding a metal to a biopolymer;
 - (b) positioning the biopolymer in a nanopore in a substrate; and
 - (c) ramping a voltage source across the nanopore in the substrate to produce a detectable signal.
- 15 2. A method as recited in claim 1, wherein said metal for doping said biopolymer is selected from the group consisting of zinc, nickel and cobalt.
3. An apparatus as recited in claim 1, wherein said biopolymer is conductive.
- 20 4. An apparatus as recited in claim 1, wherein biopolymer is a double stranded oligonucleotide.
5. A method for detecting the presence of an oligonucleotide, comprising:
 - 25 (a) hybridizing a first oligonucleotide to a second oligonucleotide;
 - (b) adding a metal to the hybridized oligonucleotides to form an initial complex; and
 - (c) applying a ramped voltage to the initial complex to produce a detectable signal.
- 30 6. A method as recited in claim 5, wherein the metal added in step (b) is selected from the group consisting of zinc, cobalt and nickel.
7. A method as recited in claim 5, wherein said biopolymer is a nucleic acid.
- 35 8. A method as recited in claim 7, wherein said nucleic acid is selected from the group consisting of RNA, DNA, aptamers and their derivatives.

5 9. A method as recited in claim 5, wherein a plurality of metal is added to said initial complex.

10. A method as recited in claim 5, wherein a plurality of different metals are added to said initial complex.

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11. A method as recited in claim 5, wherein said initial complex is conductive.

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